Product name: Aron Alpha Type 231F

FEATURES
Fast setting for bonding difficult-to-bond materials.

PROPERTIES

		231F
Liquid State (Before curing)	Appearance	Colorless, Transparent
	Base Monomer	Ethyl 2-Cyanoacrylate
	Viscosity (cps)	30
	Specific Gravity (d^{20})	1.050
	Flash Point (Closed cup, ˚C/˚F)	83/181
	Freezing Point (˚C/˚F)	-22/-8

		231F
Solid State (After curing)	Appearance	Colorless, Transparent
	Specific Gravity (d^{20})	1.248
	Hardness (Rockwell M)	85
	Softening Point (Vicat: ˚C/˚F)	145/293

PERFORMANCE
Setting time (sec), bond strength in tension and shear (psi); note:* indicates material failure.

Setting time

Material	Setting Time (sec)
Rigid PVC	1
Polymethylmetacrylate	1
ABS	3
Polycarbonate	3
Natural Rubber	3
Steel	5
Copper	3
Phenolic Resin	5
Rigid PVC/Steel	3
Aluminum/ABS	5
Phenolic Resin/Copper	5
Neoprene Rubber/Steel	3
Neoprene Rubber/ABS	3

Bonding strength Tension

Material	Bond Strength in Tension (psi)
Rigid PVC	5000
Polymethylmetacrylate	5000*
ABS	3600*
Polycarbonate	5000
Natural Rubber	360*
Steel	4600
Copper	5000
Phenolic Resin	5000*
Rigid PVC/Steel	2600
Aluminum/ABS	2100
Phenolic Resin/Copper	3600
Neoprene Rubber/Steel	360*
Neoprene Rubber/ABS	360*

Bonding strength Shear

Material	Bond strength in Shear (psi)
Rigid PVC	1000*
Polymethylmetacrylate	710*
ABS	710*
Polycarbonate	1000*
Natural Rubber	70*
Steel	2840
Copper	3000
Phenolic Resin	1000*
Rigid PVC/Steel	1000*
Aluminum/ABS	710*
Phenolic Resin/Copper	1000*
Neoprene Rubber/Steel	70*
Neoprene Rubber/ABS	70*

Test conditions—Test specimen

Tensile strength:	0.5 x 0.5 x 1.5 inch; bonded area 0.25 sq. inch
Tensile shear strength:	for plastic/rubber 0.1 x 1.0 x 4.0 inch; bonded area 0.5 sq. inch for metal 0.064 x 1.0 x 4.0 inch; bonded area 0.5 sq. inch
Bonding atmosphere:	72-75°F, 58-62% relative humidity
Test Methods:	ASTM D2095, D3164, D1002

REGULATION
Military Specification: Mill-A-46050C Type II Class 1
Medical assembly: US Plastics Class VI

HOW TO APPLY ARON ALPHA
Clean the surfaces to be bonded and then apply Aron Alpha. Be sure to apply Aron Alpha to only one of the surfaces to be bonded, preferably the smaller surface, the surface on which the Aron Alpha set time is longer, or the surface looking upward.

A common error in applying Aron Alpha is to apply an excessive quantity of Aron Alpha or to apply too small of a quantity of Aron Alpha in a wide thin film. In the former case, it is waste of Aron Alpha as well as damaging to the appearance of the bonded materials. This may also bring about chlorosis or solvent cracks. In the latter case, the Aron Alpha monomer may harden before the actual bonding starts and this will reduce the bond strength to a great extent. This is particularly the case with rubber materials.

Therefore, make sure that the nozzle of the Aron Alpha container is touching the surface to be bonded so that you can apply an optimum quantity of Aron Alpha from the container. Immediately after that, mate the two surfaces and let the Aron Alpha monomer spread between the two surfaces. It is not necessary to spread the monomer by using a rubbing motion.

Aron Alpha monomer, if kept in the form of a mound on the surface, does not harden for 5 to 10 minutes and retains sufficient bond strength.

OPTIMIUM QUANTITY OF ARON ALPHA
With Aron Alpha bonding, the thinner the film of the Aron Alpha monomer on the surface to be bonded, the greater is the resulting bond strength. An excessive quantity of Aron Alpha never helps increase the bond strength. On the contrary, it may bring about chlorosis, solvent cracks, or erosion by the Aron Alpha monomer of the surface to be bonded. Test results indicate that with Aron Alpha the optimum quantity to be applied at one time is 0.004 - 0.006 g/cm^2 or 0.03 - 0.05 mm in terms of film thickness. On the basis of the value of 5 mg/cm^2, you can obtain standard bond strengths as shown in the tables above.

STORAGE
Conditions to consider when storing Aron Alpha

Humidity
Avoid moist, humid storage conditions.
Fasten cap tightly to avoid exposure to moisture.
Store with desiccant.

Temperature
Avoid storing at a high temperature.
When storing Aron Alpha for an extended period, refrigerate between 32°F and 40°F.

Sunlight
Avoid direct exposure to ultraviolet light (keep in light-proof packaging).

Other
Never store Aron Alpha with an accelerator.

Warning:

Eye and Skin irritant. Bonds skin instantly. *Combustible* – keep away from heat and flames. For safe handling information on this product, consult the Safety Data Sheet (SDS) before using.

Disclaimer:

Please be advised that test results are those which were prepare at Toagosei America's laboratory. The results may vary under actual application conditions.

It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof.

Material removed from original containers may be contaminated during use. Do not return product to the original container. Toagosei cannot assume responsibility for product which has been contaminated or stored under conditions other than previously indicated.

If additional information is required, please contact your Toagosei Technical Department or Customer Service Representative at 614-718-3855 or 1-800-338-5192 or via email at sales@toagosei.net